

Activity #3: Essential Practices for Teaching Science

Section 2: Science in the Early Childhood Classroom

Give the first page of this handout to each participant. Give subsequent pages to each assigned group.

SAMPLE

What does the teacher do?	Examples Used to Explore Plants	
Engage	Engage the children's wonder through observation and exploration of real plants.	Observe and describe pumpkins, stems, leaves, explore plants on campus, and so on.
Explore	Explore new ideas through dialogue and develop questions to guide further learning experiences.	What do you see? What do you want to know about___? How do you think that works?
Explain	Explain how plants work by designing investigations that allow children to see what happens.	Plant needs (take away sun, water, soil), observe a stem (celery in colored water), observe a seed (bean in a jar), observe a root (carrot top in water).
Elaborate	Elaborate ideas by creating opportunities for children to design and build plants with objects.	Start with blocks and familiar objects then move to recycled objects to design and build models of a plant.
Evaluate	Evaluate by creating opportunities for children to communicate their understanding.	Write in a journal, draw and label pictures, present and explain a model plant to others.

Group 1: Exploring Dirt

Materials:

- 1 quart soil, taken from a location where the topsoil looks different from the soil underneath. (Do not use potting soil or commercial topsoil. Leave any insects, leaves, etc. in the soil.)
- A piece of newspaper

Objectives:

- To look at, touch, and smell a sample of real soil and notice that it is a mixture of different-size particles.
- To see tiny animals that live in dirt

Directions for the activity:

- Explore the dirt. Look at it; feel and smell it. Dump it out on a newspaper to sift through it.

Think About it:

After reviewing the activity, complete the following table using the **Sample** to guide you. In the “Examples” boxes write what you will do and the questions or statements you will make to ensure the children learn from the activity.

What does the teacher do?	Examples	
Engage	Observe and describe the dirt	name what they see and compare it to what they are familiar with
Explore	explore new ideas and develop questions for further inquiry	provide magnifying glasses
Explain	compare different dirt samples	dirt is composed of many different types of soil samples, insects,
Elaborate	provide opportunities for children to make their own dirt	rubbing two rocks together
Evaluate	communicate their understanding	draw pictures of what they found in the dirt sample

Group 2: Exploring Mixing and Separating Colors

Materials:

- Squares of red, blue, and yellow florists plastic or acetate (can be purchased at craft stores as wrapping paper)
- White paper

Objectives:

- To explore combining and separating color
- To notice if the same results are achieved each time the same two colors are combined

Directions for the Activity:

- Play with the squares of red, yellow and blue plastic or acetate using white paper as the background.

Think About it:

After reviewing the activity, complete the following table using the **Sample** to guide you. In the “Examples” boxes write what you will do and the questions or statements you will make to ensure the children learn from the activity.

What does the teacher do?	Examples	
Engage		
Explore		
Explain		
Elaborate		
Evaluate		

Group 3: Exploring Melting

Materials:

- Balls of wax (bees wax works better than paraffin)
- Chocolate chips

Objectives:

- To learn that heating a solid can make a change called melting, which is a change in state

Directions for the activity:

- Give each child a small ball of wax and a chocolate chip to hold in separate hands. Jump up and down 20 times and march around the room twice to get the children's hands hot enough to melt the chocolate chip.

Think About it:

After reviewing the activity, complete the following table using the **Sample** to guide you. In the "Examples" boxes write what you will do and the questions or statements you will make to ensure the children learn from the activity.

What does the teacher do?	Examples	
Engage		
Explore		
Explain		
Elaborate		
Evaluate		

Group 4: Exploring Bubbles

Materials:

- Pipe cleaners (extra fuzzy ones)
- Bubble solution
- Shallow dishes
- Newspapers
- Towels

Objectives:

- To experience making bubbles in a variety of ways with a variety of objects

Directions for the activity:

- Make a bubble wand out of pipe cleaners. Twist one end into a loop and bend it into a square shape, leaving the other end for a handle. Spread newspapers or towels out. Pour bubble solution into a shallow dish. Make bubbles by dipping the square bubble wand into the solution and blowing through the opening.

Think About it:

After reviewing the activity, complete the following table using the **Sample** to guide you. In the “Examples” boxes write what you will do and the questions or statements you will make to ensure the children learn from the activity.

What does the teacher do?	Examples	
Engage		
Explore		
Explain		
Elaborate		
Evaluate		

Group 5: Exploring Wheels

Materials:

- Variety of small, unbreakable objects (balls, small boxes, blocks, jars, lids, etc.)
- Lightweight board or cardboard
- Paper
- Markers

Objectives:

- To experience how wheels make work easier

Directions for the activity:

- Make a ramp by leaning a lightweight piece of cardboard against a sturdy pile of blocks or a bookshelf. Ask children to predict which objects will roll and which will slide down the ramp. Trace around the objects they predict will roll on one piece of paper labeled “Objects We Predict Will Roll” and trace those they predict will slide on another sheet of paper labeled “Objects We Predict Will Slide.” Let them experiment with each object and then record the results by tracing around the objects again on another piece of paper labeled “These Objects Rolled” and “These Objects Slid.”

Think About it:

After reviewing the activity, complete the following table using the **Sample** to guide you. In the “Examples” boxes write what you will do and the questions or statements you will make to ensure the children learn from the activity.

What does the teacher do?	Examples	
Engage		
Explore		
Explain		
Elaborate		
Evaluate		